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FOREST PEST MANAGEMENT
Pacific Southwest Region

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PEST EVALUATION - COLT TIMBER SALE, GOOSENEST RANGER DISTRICT, KLAMATH NATIONAL FOREST

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ABSTRACT

A 70-year-old mixed conifer stand scheduled for treatment was found to have an unusually high incidence of broken-off, downed and uprooted trees. Live trees with top injuries and evidence of heartrot were also present. Concern was expressed over what impact stem rot and blow-down may have on any residual trees following stand treatment. Three alternatives are discussed in relation to their effect on future stand damage due to decay.

INTRODUCTION

At the Forest's request, on December 2, 1980, John Pronos and John Dale, Forest Pest Management Staff, visited a stand within the Colt Timber Sale to identify any existing and/or potential pest problems. They were accompanied by Ed Zeikus from the District, who is using the stand for his Silvicultural Certification Examination.

OBSERVATIONS

The stand was approximately 70 years old and contained mostly sawtimber size ponderosa pine and white fir. The area had been logged three times since the 1930's.

The most conspicuous problem involved many broken off or downed trees and several uprooted trees. Armillaria mellea root disease was present in the area, but after examining the stand and pattern of tree death, we concluded

that this fungus was not directly causing any tree mortality or failure. Rather it was acting as a saprophyte invading roots as they were dying or after they were dead.

A significant number of living trees had some type of mechanical damage in the upper crown. Heavy snow, ice, wind, or reckless logging could account for these defects. Regardless of cause, the result appeared to be a high incidence of stem decay and corresponding breakage or blow-down. Decay fungi can utilize any open wound to gain access to the bole. It is unlikely, however, that decay is the sole cause of tree failure in the stand.

DISCUSSION

The stand is scheduled for treatment, and our concern is over what impact stem rot and blow-down may have on any residual trees. It is impossible to recognize all the living trees within the stand that might currently have decay. Indicators of decay in living trees include: conks, swollen knots, punk knots, broken tops, dead tops, and all wounds (fire scars, logging damage, frost cracks, and animal damage).

Biological implications of various stand treatments in relation to decay are discussed below.

1. No treatment. The past level of volume loss and frequency of tree failure will continue. We do not have an estimate of actual decay impact for the stand, but it is possible to have decay equal to or greater than volume growth in affected trees.

2. Partial cuts. Any partial cutting would allow for the removal of defective trees as recognized by the indicators listed above. This procedure would also recover sound wood in trees removed while transferring future volume growth to trees with the highest value and least probability of failure after stand treatment. There is still a risk of blow down after opening up the stand, but we have no estimate of the probability. If there are not enough leave trees without defects or decay indicators to make up the desired residual stocking and spacing then thinning is not a desirable treatment.

   The decay problems could be perpetuated by careless logging that damages residual trees, or by any other factor, such as fire, that wounds trees.

3. Clearcutting. A clearcut would eliminate the concern over logging damage and future decay loss in residual trees. Because of the history of decay in the stand, however, you should assume that the next stand will also be exposed to potential infection by decay organisms. Historically stem rots have been a problem primarily in old growth stands, and there is no doubt that where decay is present it increases with time. The most current research has

shown that certain decay fungi can cause significant problems in young second growth stands if injuries, during future entries, are not kept to a minimum.

This evaluation deals with decay and its management considererations in a very generalized way. Please contact our Staff with any more specific questions or for points of clarification.